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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,618	04/15/2004	Jean-Michel Paul	ATOCM-0350	6265

23599 7590 12/22/2004

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EXAMINER

PUTTLITZ, KARL J

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

10/824,618

### Applicant(s)

PAUL ET AL.

### Examiner

Karl J. Puttlitz

### Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/15/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### **Arrangement of the Specification**

Applicant is requested to conform the Specification to the requirements set forth in M.P.E.P. § 608.01(a) and 37 C.F.R. 1.77 for arrangement of applications.

Appropriate correction is required.

### ***Information Disclosure Statement***

The information disclosure statement filed April 15, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The examiner has drawn a line through those documents not provided.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 states the reagents are in excess molar ratio. However, it is unclear which reagent is in excess molar ratio.

The terms "the place left free" and "the desired overall molar ratio" in claim 1 lack antecedent basis.

It is unclear what molar ratio is intended by the term "the desired overall molar ratio" in claim 1.

It is unclear what portion of the reactor Applicant intends by the term "the place left free in the reactor". Does this intend to cover a space volume or "free" of a reactant or reaction mixture?

Claim 7 recites a preferred range. It is unclear which range Applicant intends to cover by this claim language.

The terms "the temperature for distillation . . ." and "the whole reaction" lack antecedent basis in claim 9.

The term "the excess acetic anhydride and the residual mixed anhydride" lack antecedent basis in claim 10.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 4,857,239 to Hurtel et al. (Hurtel) in view of EP 4641 o Dankert et al. (Dankert), See CA Abstract attached.

The claims of the application are drawn to, inter alia, a process for the manufacture of isobutyric anhydride by reacting acetic anhydride with isobutyric acid, distilling the acetic acid generated as it is formed, characterized in that the reactor is initially loaded with at least a portion of one of the reagents and a portion of the other such that the reagents are in an excess molar ratio relative to the stoichiometry of one of the reagents, and the reaction is carried out while adding the remainder of the reagents as the reaction progresses and according to the place left free in the reactor by the distillation of the acetic acid produced by the reaction, until the desired overall molar ratio of the reagents is reached. See claim 1.

Hurtel teaches reacting (meth)acrylic acid with acetic anhydride in the presence of at least one polymerization inhibitor, in a reactor surmounted by a distillation column. This process is characterized in that the mole ratio of (meth)acrylic acid to acetic anhydride is chosen to be between 2.05 and 5, in that the reaction is performed in the absence of catalyst, and in that: the acetic acid formed during the reaction is drawn off, and at least one polymerization inhibitor is gradually introduced into the top of the distillation column during the reaction and the distillation enabling the (meth)acrylic anhydride formed to be separated. Advantageously, the polymerization inhibitor introduced at the column head is diluted in an organic solvent. Preferably, during the reaction it is diluted in acetic acid, and during the distillation it is diluted in (meth)acrylic

anhydride. The reaction temperature is maintained at between 60.degree. and 170.degree. C., and preferably between 60 and 80 C. The pressure during the reaction is maintained at between atmospheric pressure and 10 mmHg, and preferably between 100 and 500 mmHg. See column 1, lines 28-51.

The difference between the process described in Hurtel and that covered by the rejected claims is that while the claims recite the preparation of isobutyric acid, Hurtel teaches the preparation of methacrylic anhydrides. It is for this proposition that the examiner joins Dankert. Specifically, Dankert teaches that carboxylic acid anhydrides taught by this process are useful as intermediates in the synthesis of herbicides. Therefore, one of ordinary skill would be motivated to modify Hurtel to produce isobutyric acid anhydrides since at the time of the invention, these compounds were known to be useful as intermediates. Therefore, the rejected claims are prima facie obvious in view of Hurtel and Dankert since these references teach the claimed invention with a reasonable expectation of success.

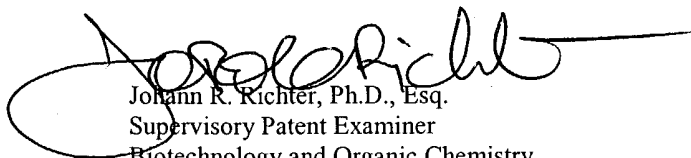
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday-Friday (alternate).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist.

Karl J. Puttlitz  
*Assistant Examiner*



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